SEStran Newcraighall Study

Feasibility Study for Footpath/Cyclepath

SEStran May 2008

SEStran Newcraighall Study

Feasibility Study for Footpath/Cyclepath

Project No: 144111 May 2008

4 St. Colme Street, Edinburgh EH3 6AA Telephone: 0131 226 4693 Fax: 0131 220 0232 Email : Edinburgh@cbuchanan.co.uk

Prepared by:

Kevin McMahon

Status: Final

Issue no: 1

Approved by:

David McGuigan

Date: 18 May 2008

j:\144111 sestran newcraighall study cyclepath\word\reports\final report\final report 01.doc

(C) Copyright Colin Buchanan and Partners Limited. All rights reserved.

This report has been prepared for the exclusive use of the commissioning party and unless otherwise agreed in writing by Colin Buchanan and Partners Limited, no other party may copy, reproduce, distribute, make use of, or rely on the contents of the report. No liability is accepted by Colin Buchanan and Partners Limited for any use of this report, other than for the purposes for which it was originally prepared and provided.

Opinions and information provided in this report are on the basis of Colin Buchanan and Partners Limited using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as to their accuracy. It should be noted and is expressly stated that no independent verification of any of the documents or information supplied to Colin Buchanan and Partners Limited has been made



Contents

Page

1.	INTRODUCTION	1
1.1	Background	1
1.2	Report Structure	1
2.	CURRENT ROUTE ASSESSMENT	2
2.1	Assessment of Existing Route, Newcraighall to QMU	2
2.2	Links to the wider path and road network.	3
3.	BENEFITS FROM POTENTIAL ROUTE	4
3.1	Benefits of the existing route	4
3.2	Benefits from potential route	4
4.	EXAMINATION OF RAIL SERVICES	5
4.1	General	5
4.2	Musselburgh Rail Station	5
4.3	Newcraighall Rail Station	5
4.4	Examination of overall journey times	6
4.5	Rail Fare Structure Musselburgh and Newcraighall	7
5.	POTENTIAL LEVELS OF USE	9
5.1	General	9
5.2	Queen Margaret University	9
6.	PASSENGER SURVEYS	11
6.1	General	11
6.2	Current Usage at Newcraighall	11
6.3	Current Usage at Musselburgh	11
6.4	Survey Results from users of Musselburgh	12
7. 7.1	FUTURE DEVELOPMENTS IN THE NEWCRAIGHALL AREA General Observations	13
 8. 8.1 8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 	POTENTIAL ROUTE SOLUTIONS Overview Discussions with Stakeholders Newcraighall Station to the A1 A1 Railway Bridge A1 Railway Bridge to Newcraighall Park Option 1 (1 in 20 Gradient) Option 2 (A series of 1 in 12 ramps) Loss of Trees due to proposed works. Lighting Provision Land Ownership	14 14 15 17 17 18 18 19 19
9.	PREFERRED ROUTE	21
9.1	Use of Embankment to West and Option 2	21
9.2	Cost Estimates	21
10.	CONCLUSIONS AND RECOMMENDATIONS	22
10.1	Conclusions	22



10.2 Recommendations



1. Introduction

1.1 Background

- 1.1.1 Colin Buchanan (CB) has been commissioned by SEStran to undertake a feasibility study into a potential footpath/cyclepath across the railway line to the south side of Newcraighall Rail Station.
- 1.1.2 This potential route will provide a more direct link between the station's platform and Park & Ride site on the west of the railway line and the National Cycle Network Route 1 (NCN 1), Newcraighall Park and beyond to Queen Margaret University (QMU) to the east. A location plan is provided in Figure 1.1.
- 1.1.3 The provision of a new route, using the existing overbridge on the A1 (known as Whitehill Mains Railway Bridge) would assist in reducing the travel distance for pedestrians and cyclists from the rail station and also avoid road safety and accessibility problems associated with the narrow road and footpath width at Newcraighall Road Railway Bridge.
- 1.1.4 At the present time it is recognised that the provision of any new route would be of most benefit to those travelling to and from QMU, which already has a number of issues with overspill car parking into nearby residential streets. However it may be that with future developments in the area this route would be of benefit to the wider community, especially as car parking pressures will increase.

1.2 Report Structure

1.2.1 Chapter 2 of the report describes the existing route between Newcraighall Station and QMU. Chapter 3 examines the potential benefit of the potential route. Chapter 4 existing train timetables and other issues relating to current usage of the adjacent railway stations and links to QMU. Chapter 5 and 6 examines the potential use following onsite observations, surveys of users and examinations of other survey and post code data. Chapter 7 makes mention of potential developments in the Newcraighall area. Chapter 8 gives details of potential routes and access solutions, along with issues that would have to be taken into account if the project was to progress. Chapter 9 provides information on indicative cost estimates and Chapter 10 details the final conclusions and recommendations.



2. Current Route Assessment

2.1 Assessment of Existing Route, Newcraighall to QMU

- 2.1.1 The existing route from Newcraighall Station to QMU was examined during a number of site visits.
- 2.1.2 At present the route requires pedestrians and cyclists to leave by the north side Newcraighall Station to gain access to Newcraighall Road. From here they must travel east under an existing railway bridge then turn right into Newcraighall Drive before joining the off-road path through Newcraighall Park. This path leads all the way to the QMU campus.
- 2.1.3 The route can be seen in the following photographs in Figure 2.1 and on the plan provided in Figure 2.2.



Newcraighall Road Railway Bridge



Newcraighall Drive





Newcraighall Park

Existing Path to QMU

Figure 2.1: Existing route from Newcraighall Station to QMU

- 2.1.4 The distance from Newcraighall Station to the centre of the QMU campus using the current route available is some 1,400 metres. This equates to a journey time of some 15 to 20 minutes by foot and around 5 to 7 minutes by bike.
- 2.1.5 The route between the two destinations is indirect and will to some degree discourage usage of the Newcraighall Station by QMU students and staff.
- 2.1.6 A major problem with this route in relation to accessibility is the narrow footway at the Newcraighall Road railway bridge. The footway is some 1.1m wide, however the existing guardrail reduces the effective width to 880m. This width is well below the recommended 2.0m for all users and is also below the absolute minimum width of 1.0m that should be provided at localised obstructions. While



the route can be negotiated by able bodied persons, those with mobility difficulties may find the route impassable.

- 2.1.7 The existing path through Newcraighall Park is below the 3.0m width normally provided for shared use walking and cycling route, however, this is an existing route and there does not appear to be any obvious problems in relation to usage at this time. It is also noted that the new eastern section of the route that links into the QMU campus and Musselburgh beyond is 3.0m wide.
- 2.1.8 The off-road path from Newcraighall Park to QMU is currently being provided with solar powered lighting units thus improving conditions for all users.

2.2 Links to the wider path and road network.

- 2.2.1 As can be seen from Figure 1.1 the route through Newcraighall Park to QMU forms part of the National Cycle Network Route 1 and therefore has the potential to be used for long distance cycle trips and local journeys alike. At Newcraighall Road the NCN 1 heads east away from Newcraighall Railway Station, however at this point there are adequate links to the Fort Kinnaird Retail Park and other destinations and cycle routes to the west.
- 2.2.2 With the exception of the Newcraighall Railway Bridge the overall facilities for pedestrians on the Newcraighall Road corridor is considered adequate. In addition to this there is a proposal to signalise the A1 interchange and provide improved pedestrian crossing facilities.
- 2.2.3 To the south of Newcraighall Park and the A1 the existing route connects to Whitehill Road via an underpass. Whitehill Road then also leads westwards to the west side Fort Kinnaird Retail Park where there are ongoing proposals to provide new roads and cyclepaths.
- 2.2.4 Heading from the underpass to Whitehill Road, users will find that, given its isolated location, the path has been used for fly tipping and as such the route suffers somewhat in terms of its attractiveness and accessibility.





3. Benefits from potential route

3.1 Benefits of the existing route

- 3.1.1 It is considered that the existing route between Newcraighall Station and QMU, with the exception of the narrow footway on Newcraighall Road is suitable for a wide variety of trips on foot or by bike.
- 3.1.2 The route is relatively straight, level and off-road for the majority of its length making it suitable for use by most users. The section of the route running through Newcraighall Park and Newcraighall village benefits from natural surveillance from people using the park and from the adjacent residential developments.
- 3.1.3 In addition to the natural surveillance there is a new lighting scheme being installed on the route from QMU to Newcraighall Drive and this will improve conditions for users in the hours of darkness.
- 3.1.4 At Newcraighall Road the section of road running though Newcraighall Village has been provided with traffic calming thus reducing traffic speeds and improving general road safety for pedestrians and cyclists alike.
- 3.1.5 Proposed improvements to other junctions in the area will further enhance pedestrian and cycle facilities.

3.2 Benefits from potential route

- 3.2.1 While the existing route may cater for the majority of trips in all directions from Newcraighall Station, it does result in a circuitous journey from the station platform to Newcraighall Park and QMU to the east. In addition to this, the narrow footway at the Newcraighall Railway Bridge introduces an accessibility problem for some users.
- 3.2.2 It is estimated that the journey time from the platform to the southern edge of the park is some 5-8 minutes and, as such, a more direct link over the railway line at the southern end of the station would considerably reduce the journey time for those using Newcraighall Station and wishing to travel to and from QMU.
- 3.2.3 It is noted that while Musselburgh Railway station is closer to the QMU campus, (a walking journey of some 2- 3 minutes) the rail service to Newcraighall has a higher frequency, directly serves more stations in Central Scotland and there may be benefits in creating a new route to provide rail travellers with better access to the current rail services.
- 3.2.4 As part of the study CB has been asked to examine the possibility of providing a route that is compliant with the requirements of the Disability Discrimination Act (DDA). Ensuring that the route is DDA complaint would assist in providing an alternative route to the narrow footway at Newcraighall Road Railway Bridge.



4. Examination of Rail Services

4.1 General

- 4.1.1 As part of the study an examination of the existing rail services to both Musselburgh and Newcraighall railway stations has been undertaken to establish the potential benefits of using Newcraighall Station, especially for travel to and from QMU.
- 4.1.2 Accessibility analysis using Accession carried out by SEStran revealed that for travelling in the morning peak, of the 146,778 households who could access the two stations in less than an hour, 89,446 (61%) households could access Musselburgh station more quickly and 57,332 (39%) households could access Newcraighall more quickly. (For simplicity, this assumed that people lived within 1 mile of a train station).

4.2 Musselburgh Rail Station

4.2.1 Musselburgh rail station is the closest station to the campus and only 2-3 minutes walk from the centre of the Campus. While very convenient for the QMU, the hourly service outwith the peak hours means that some students and staff may not see rail travel to and from Musselburgh as being overly attractive in relation to their own travel patterns. The train frequencies are as follows in Table 4.1

Table 4.1:	Train Frequencies at Musselburgh Rail Station
------------	---

Route	Direction	Mon – Fri Freq.	Sat Freq.	Sun Freq.
Edinburgh to North Berwick Haymarket – Edinburgh –	North Berwick bound	60 mins (30 mins peak hours)	30 mins	60 mins
Musselburgh –Wallyford – Prestonpans – Longniddry – Drem – North Berwick	Haymarket bound	60 mins (30 mins peak hours)	30 mins	60 mins

- 4.2.2 As trains are less frequent at this station than at Newcraighall it may be the case that if a new route were to be constructed at the south end of the station, passengers would use the Newcraighall station as an alternative to Musselburgh due to its increased accessibility.
- 4.2.3 Musselburgh station represents the only option for train travel for travellers from the east.

4.3 Newcraighall Rail Station

4.3.1 Table 4.2 below illustrates the frequency of trains which serve the Newcraighall Park and ride site. The level of service at the station is evidently higher than Musselburgh and it may be that the level of use could potentially increase with the introduction of the proposed footpath/cyclepath.



Route	Direction	Mon – Sat Freq.	Sun Freq.
Edinburgh Crossrail Newcraighall – Brunstane – Edinburgh –	from Newcraighall	30 mins	-
Haymarket - Edinburgh Park – Bathgate or Stirling- Dunblane	to Newcraighall	30 mins	-

Table 4.2: Train Frequencies at Newcraighall Rail Station

- 4.3.2 Newcraighall offers the potential for straight through trips from Bathgate, Stirling and the west of Edinburgh.
- 4.3.3 However it must be recognised that while the frequency of trains to Newcraighall may initially look attractive, some consideration has to be taken of the overall journey time between the stations and QMU. Currently the journey time between the station and QMU is some 15 to 20 minutes

4.4 Examination of overall journey times

4.4.1 The following Figure 4.1 provides a graphical representation of overall journey times based on journeys between both Musselburgh and Newcraighall Stations. A walking journey time of 3 minutes has been used for the Musselburgh to QMU trip and 12 minutes for Newcraighall to QMU assuming the provision of the new route to the south of the railway station.



Typical Off-Peak Hour Train Journeys plus walking time to QMU campus. Edinburgh Waverley to Musselburgh & Newcraighall



Typical Off-Peak Hour Train Journeys plus walking time from QMU campus. Musselburgh & Newcraighall to Edinburgh Waverley



Peak Hour Train Journeys plus walking time from QMU campus. Musselburgh & Newcraighall to Edinburgh Waverley



Figure 4.1: Total Journey Times to QMU using existing Peak Hour and Off peak train services

As can be seen from Figure 4.1. There would appear to be little benefit in using Newcraighall in the morning peak given the shorter overall journey time on the Musselburgh service when travelling directly from Waverley. For those

^{4.4.2}



passengers travelling on the Newcraighall service from Bathgate, their overall journey time could be reduced by some 8 minutes by changing onto the Musselburgh service at Edinburgh Waverley.

- 4.4.3 However, the QMU staff survey (see Section 5) indicated a reluctance to interchange as a reason for not using rail for 19%. Service frequency was mentioned by 28% of respondents who would not take the train. Newcraighall offers a direct service to all stations to Stirling/Dunblane, Livingston/Bathgate and, when the new rail line is built, to Midlothian and the Borders.
- 4.4.4 For students using bicycles to link with the station at either end of their journey, Newcraighall offers a viable alternative with far greater frequency. This will be of particular use if peak trains are meeting or exceeding bike capacity.
- 4.4.5 In relation to the off-peak times and the evening peak, there is clearly some benefit to be gained by using the Newcraighall given the additional service. It must however be recognised that in the off-peak times the numbers of people travelling will be far less than during the peak times.
- 4.4.6 Just prior to the evening peak any students and staff finishing at 16:30 would be able to catch the 16:45 Musselburgh to Edinburgh service and arrive in Edinburgh by 16:52.
- 4.4.7 It is noted that in addition to the hourly service at Musselburgh two additional trains are provided departing westbound at 18:13 and 19:13. These result from additional trains being provided for commuters leaving Edinburgh. However, these trains may not be of the greatest benefit for the majority of rail users given the general operation hours of the QMU.

4.5 Rail Fare Structure Musselburgh and Newcraighall

- 4.5.1 In the course of the study a price differential was identified between the journey from Edinburgh to Newcraighall and Musselburgh. For those travelling in peak hours, the fare differential is only 20pence although that may be a disincentive to rail travellers who are students.
- 4.5.2 The price differentials are shown below in table 4.3

Table 4.3:	Rail Fares, Edinburgh to Newcraighall & Musselburgh
------------	---

	Edinburgh – Newcraighall	Edinburgh - Musselburgh
Saver/ Cheap Day		
Return	£3.10	£2.50
Open Return	£3.20	£3.00
7 Day Season Ticket	£13.40	£12.30
1 Month Season Ticket	£51.50	£47.30
3 Month Season Ticket	£154.40	£141.70
6 Months Season Ticket	£308.80	£283.40
12 Month Season Ticket	£536.00	£492.00

4.5.3

As can be seen from the above table the fares from Edinburgh to Musselburgh are cheaper than those to Newcraighall. This price difference means that passengers cannot switch to the more frequent Newcraighall service without having to pay the difference in fare. It is also the case that season ticket holders will also be unable to use their tickets without paying an additional charge.



4.5.4 It is understood QMU have raised this issue with First Scotrail and that discussions are currently ongoing with a view to investigating how this situation can be resolved.



5. Potential Levels of Use

5.1 General

5.1.1 As part of the study there is a need to examine the potential levels of use of any new route at Newcraighall Station. Three sources of information were used for this purpose: previous travel survey results from QMU, on-site observations of rail usage and a survey of existing rail passengers.

5.2 Queen Margaret University

- 5.2.1 The current pattern of rail services is already having an influence on the University's operations. Anecdotally, many staff are adjusting their working hours so as to finish at 16:30, in time to catch the 16:45 train to Edinburgh. In addition, most student classes are between the hours 10:15-17:15 which leaves a long delay before the next train back to Edinburgh at 17:45.
- 5.2.2 Gill Kelly, Green Travel Plan Co-ordinator at QMU provided CB with the results of the 2007 staff and student travel survey which was undertaken before the campus was operational.
- 5.2.3 The survey resulted in a total of 850 responses.
- 5.2.4 The survey indicated that some 78% of respondents live within a 15 minute walk of a public transport corridor.
- 5.2.5 When asked how people would travel to the new campus 27% indicated they would travel by bus and 22% indicated they would travel by train.
- 5.2.6 For those who indicated they would drive to the new campus, the main reasons for not using public transport were split as follows;
 - Service not frequent enough / Does not suit -28%,
 - Need to change service -19%,
 - Unreliable -19%,
 - Too Expensive -17%.
- 5.2.7 It was further noted that in the section for additional comments the survey revealed that there were concerns relating to Improving Public Transport Connections (18%) and improving Information of Travel Options and Timetables (17%).
- 5.2.8 QMU have not measured the current level of footfall on the existing route between Newcraighall and the campus as its use is discouraged by the university due to the lack of lighting (although this has been resolved in the last month by the provision of a solar lighting system along the route).
- 5.2.9 The next staff and student travel survey is currently being developed and is expected to be carried out in April 2008. It is understood there are specific questions with regard to the rail services available, the frequency of trains and the effect of the price differentials.
- 5.2.10 The results of the latest survey may be helpful to the client in the future when considering the need for the new potential route.
- 5.2.11 In addition to the travel survey QMU have also provided a Post Code Analysis and this can be seen in Figure 5.1. As one would expect there are clusters of students around the old Clermiston and Leith campuses. It can also be seen that there are clusters in the Gorgie/Dalry area and the top of Leith Walk which



can be considered as being within easy reach of Haymarket and Waverley railways stations respectively.

5.2.12 In relation to staff Post Code Analysis the percentage breakdown is as follows in Table 5.1

Post Code Area	No	Percentage
EH1-2	4	1%
EH3	9	2%
EH4 – 5	52	10%
EH6	39	8%
EH7	27	5%
EH8	15	3%
EH9 -10	41	8%
EH11	15	3%
EH12	36	7%
EH13 -17	57	11%
EH18 - 29	59	12%
EH30 - 39	26	5%
EH40 - 49	29	6%
EH50 - 55	11	2%
FK (Falkirk Area)	9	2%
G (Glasgow Area)	20	4%
KY (Fife Area)	27	5%
Others / Unknown	37	7%
Totals	513	100%

Table 5.1: QMU Staff Post Codes

5.2.13

As can be seen staff tend to be spread across the city with a relatively high percentage in post code areas that are some distance from railway stations. In addition, 43% live outside of Edinburgh.

5.2.14 Finally, it should be noted that improving the links to Newcraighall station might lead to an unintended consequence of a number of people leaving their car at the Park&Ride site to access the QMU campus without using the bus/rail services.

Figure 5.1 QMU Post Code Analysis – Students



Edinburgh, Edinburgh City, Scotland

Copyright © 1988-2000 Microsoft Corp. and/or its suppliers. All rights reserved. © 1999 Navigation Technologies B.V. and its suppliers. All rights reserved. Selected Road Maps © Copyright 1999 by AND International Publishers N.V. All rights reserved. © Crown Copyright 1999. All rights reserved.

Page 1



6. **Passenger Surveys**

6.1 General

6.1.1 As there was no available data on the current level of usage of Newcraighall and Musselburgh rail stations in relation to travel to QMU, CB carried out observational studies with regard to rail usage.

6.2 Current Usage at Newcraighall

- 6.2.1 At Newcraighall, while the Park and Ride facility appears to be reasonably well used, it was established that only a handful of people who exited the station and Park and Ride in the morning peak continued on towards Newcraighall Drive and the park. Of the nine people using the facility and heading towards Newcraighall Park, 5 were rail passengers and 4 came from vehicles in the park and ride site.
- 6.2.2 During various visits to the site CB staff observed that there were very few people using Newcraighall during off-peak periods with no more than 3 passengers boarding or alighting at any one time.
- 6.2.3 It is understood that until the lighting of the path has been completed, QMU have indicated to students that the path through the park to QMU may not be the best travel option in relation to personal safety, therefore this may have had a small effect on the numbers using the route. However, CB staff have observed a handful of people who may have been students using the path being that their cars were parked in the parking area at Newcraighall Drive / Park View.
- 6.2.4 Given the on-site observations of low passenger numbers combined with the fare price differential and QMU discouragement of using the route through the park it was decided that there was little point carrying out surveys of the few people using Newcraighall as part of this study.

6.3 Current Usage at Musselburgh

- 6.3.1 Observations at Musselburgh Station indicated that some 132 passengers leaving the 08:45 arrival from Edinburgh and heading for QMU. Gill Kelly of QMU has indicated that this figure matches her own observations of passenger numbers and that a similar number arrive on the 09:45 train.
- 6.3.2 The vast majority of passengers are coming from the Edinburgh direction with only 3 passengers heading onto QMU observed leaving the trains heading into Edinburgh from North Berwick.
- 6.3.3 CB staff observed that during the off-peak times the numbers of train passengers were much reduced with around 20 passengers using the 12:45 service back into Edinburgh
- 6.3.4 During the evening peak CB staff observed over 100 passengers boarding the 16:45 service back into Edinburgh.
- 6.3.5 Given the numbers of passengers at Musselburgh CB undertook a simple survey to establish if existing passengers had used or would considering using Newcraighall station.



6.4 Survey Results from users of Musselburgh

6.4.1 200 Survey forms were passed to people arriving on the morning trains and heading in the direction of QMU, however the return rate was disappointing at only 10%. CB therefore carried out face to face interviews with a further 50 passengers as they waited on trains at Musselburgh. The results of the surveys can be seen in table 6.1 below;

1. Wh	1. Where do you normally start your journey to QMU?									
Haymarket		9%	Waverley		57%		Other	34%	(examples of other stations below)	
2. On	2. On average, how many days per week do you travel to QMU by train?									
1	2%	2	11%	3	34%	4	16%	5	36%	
3. Do	you ev	er use N	lewcrai	ghall S	tation?					
Often		2%	Some	etimes	16%	16% Never		82%		
4. If a you co	4. If a new route reduced the journey time from Newcraighall by 5 minutes would you consider using the station?									
Definitely		48%	Possi	bly	41% Never		11%			
5. Ple Newc	5. Please rate your personal security concerns with regard to the route to Newcraighall Station?									
Highly Conce	/ erned	27%	Mode conc	erately erned	34%	Cor	No ncerns	7%	Don't Know	32%

Table 6.1: Survey of existing rail passengers using Musselburgh

- 6.4.2 From the above survey it can be seen that the majority of people commence their journeys at Waverley and as such, during the morning peak the Musselburgh train will be the obvious travel choice. For those travelling from other locations, stations included Falkirk, Glasgow, Stirling, Kirkcaldy, Inverkeithing and Livingston. Once again, this would result in most passengers simply transferring to a Musselburgh train at Waverley.
- 6.4.3 While currently most people have never used Newcraighall, over 80% say they would consider it as an alternative if the journey time to QMU was reduced. People would therefore benefit from higher service frequencies throughout the day in peak and off peak. However, while people may try the option they would clearly not transfer permanently to Newcraighall if there was no particular advantage in doing so in relation to overall journey times, such as during the morning peak hour. This may limit Newcraighall to be seen as a second choice alternative during the off peak times and in the evening peak if people have missed the 16:45 Musselburgh to Edinburgh service and cannot afford to wait for the next train at 17:45.
- 6.4.4 It is also noted that to persuade people to use the Newcraighall route, concerns over personal safety issues may have to be addressed and in reality these concerns may reduce the potential numbers of people using the route.
- 6.4.5 Given that the Newcraighall route may be used more in the off-peak and the evening, this may result in some people finding themselves using the route in isolation and / or in the hours of darkness. The choice to use Newcraighall will therefore depend on a variety of factors such as time demands, views on personal safety, and the weather conditions.



7. Future Developments in the Newcraighall Area

7.1 General Observations

- 7.1.1 During the study it has been established that there are potential developments that may influence the provision of a new route to the south of Newcraighall railway station.
- 7.1.2 The lands between Newcraighall Park and QMU all have development potential and it is understood that initial discussions have taken place with regard to the potential uses for lands in the area and the associated road and pathway networks.
- 7.1.3 If any type of development were to take place in this area this would increase the number of trips to the area and thus have the potential to increase passenger numbers at Newcraighall. This may therefore add weight to the need for a new route to be provided at the south end of the railway station as a means of ensuring adequate links between any new development and the existing public transport services.
- 7.1.4 Any development will affect the route of the National Cycling Network Route 1.



8. **Potential Route Solutions**

8.1 Overview

- 8.1.1 As discussed earlier in this report, the existing route from Newcraighall Station to QMU is somewhat circuitous. The provision of a route to the south of the railway station would assist in reducing the overall journey time between the two destinations. It is also the case that if a facility could be provided that meets the requirements of the Disability Discrimination Act (DDA) then this would assist in removing the current accessibility problem at the Newcraighall Railway Bridge.
- 8.1.2 Figure 2.2 provides a general layout for any proposed route to the south of the railway station.
- 8.1.3 It has been established that the existing railway bridge over the A1 has a wide bridge deck that could easily accommodate a footpath/cycle path without any major disruption to A1 traffic operations.
- 8.1.4 To reach the overbridge on the A1 the potential route would have to accommodate a significant height difference that exists due to the large embankments on either side of the railway line.
- 8.1.5 Given these significant height differences, the client had requested that some consideration was given to the possibility of providing an underpass link from the Park & Ride site to Newcraighall Park. On examination of the layout of the platform and the park & ride site, the only practical location for an underpass would be towards the north end of the platform, tying in close to the bottom of the existing access ramp. An underpass of some 40m would be required and it is acknowledged that there are normally a number of personal security issues associated with underpasses in what is a relatively isolated area. It is also the case that the construction of an underpass could be relatively expensive and would potentially have a major effect on rail operations.
- 8.1.6 A suitable location for an underpass would be towards the north end of the station and as such closer to the existing Newcraighall Railway Bridge. While such a facility would assist in dealing with the accessibility issues, its proximity to Newcraighall Road would reduce the potential journey time saving.
- 8.1.7 On this basis it was decided that the study should concentrate on examining the potential for a route at the south end of the Newcraighall Station.

8.2 Discussions with Stakeholders

- 8.2.1 In examining the options for a new route CB invited views from a number of key stakeholders. In addition to telephone conversations and correspondence a meetings were held on site with the following stakeholders;
 - Gill Kelly QMU
 - Paul Ince East Lothian Council (ELC)
 - Caroline Burwell City of Edinburgh Council (CEC)
 - Katharine Taylor Sustrans
 - Keith Irving SEStran
- 8.2.2 Additional communication took place between CB and Bill Stewart of CEC Structures section and John Yellowlees of First Scotrail.
- 8.2.3 The following options for the route are based on the outcome of these discussions and meetings.



8.3 Newcraighall Station to the A1

- 8.3.1 At present the access from the Newcraighall Park & Ride site to the station's platform is via a long ramp that meets DDA requirements.
- 8.3.2 To the west of the access ramp there is an area of embankment with a flat area on top with a width of around 9.0m that separates the platform from the lower lying land to the west. See Figure 8.1



Figure 8.1: Embankment to west of existing path to platform

8.3.3

It is envisaged that this embankment could be used to form a new path at a higher level that would then continue on towards the A1 railway overbridge. See Figures 8.2



Figure 8.2: Top of embankment looking south towards the A1.





Figure 8.3: Embankment as seen from A1

- 8.3.4 It is the case that some form of engineering works will be required to 'bridge the gap' between the embankment running alongside the platform and the embankment for the A1. Figure 8.4 provides an indicative longitudinal section through the route and Figure 8.5 provides indicative cross sections of how the embankment may have to be built up to provide for the new footpath / cyclepath. It is believed that it will be possible to provide a route that meets the 1 in 20 gradient criteria for use by all users.
- 8.3.5 Following discussions with the client it was agreed that at this feasibility stage there was no need for full topographical survey work to be carried out, therefore the indicative layouts should be viewed as such being based on limited level data for the area. Given the limited information the exact tie-in locations would have to be reviewed within a detailed design process.
- 8.3.6 It must be recognised that to create this route detailed geotechnical survey work would need to be undertaken to establish if the existing embankment could accommodate the plant and machinery required during the construction works. As it appears that the embankment may have been constructed in conjunction with works at Newcraighall Station, there is a presumption that it has previously been able to cater for some level of plant and construction traffic at that time.
- 8.3.7 An alternative to using an earthworks solution to 'bridge the gap' may be to provide some form of ramped structure. There are however a number of disadvantages relating to this approach. Firstly, in terms of construction, more detailed survey work would be required to establish what type of structure may be capable of being installed especially in relation to the required foundations and supports. Secondly, given the unique nature of the route it is unlikely that some 'off the shelf' type structure could be purchased and as such a considerable cost could be devoted to the design of a structure. Thirdly, to access the area during the installation of a structure it is more than likely that a degree of works would affect the A1 and as such this could also add to the overall costs.
- 8.3.8 Given the above it is considered that the simpler earthworks proposal is the preferred option being that the majority of work can be carried out without affecting the A1 and that overall design costs will be minimised.



8.4 A1 Railway Bridge

8.4.1 It has been recognised from the start of the study that the existing bridge on the A1 over the railway line has a wide bridge deck, which appears to be capable of accommodating a footway / cycleway. See Figure 8.6



Figure 8.6: A1 Railway Bridge looking east

- 8.4.2 Early discussion with Bill Stewart of CEC indicated that there did not appear to be any technical reasons why the bridge could not be used to accommodate pedestrians and cyclists. The main change to the area would be to realign the existing safety barrier on the A1 to run alongside the carriageway, as opposed to running into the bridge parapet as at present. Given the need to contain users in the interests of safety for both the high speed road and rail environment, it was felt that some form of secondary fencing may be of benefit to ensure that people did not stray onto the road or be tempted to throw items onto the railway.
- 8.4.3 The provision of a realigned safety barrier would also have the benefit of ensuring that that existing traffic signs in the vicinity of the bridge deck would be protected, given that this is not the case at present.
- 8.4.4 Figures 8.7 and 8.8 provide a plan and an indicative cross section of the bridge deck.
- 8.4.5 During the site visit discussions took place with regards to striking a balance between containing users on the bridge deck, however, not in such a manner that would lead to the feeling of enclosure and potential personal security fears, if no obvious escape route was available. It was suggested that a well designed landscape scheme may be just as effective as any fencing proposal.

8.5 A1 Railway Bridge to Newcraighall Park

8.5.1 To the east of the railway line any new route from the A1 down to the existing route on the south side of Newcraighall Park will have to negotiate an embankment of some 15metres in height. When examining how this could be done, two options were considered.



8.6 Option 1 (1 in 20 Gradient)

- 8.6.1 The first option examined involved the creation of path some 300m long so as to achieve a gradient of 1:20. See Figure 8.9
- 8.6.2 As can be seen this path would run almost parallel to the existing route on the south side of Newcraighall Park and would tie in at the underpass leading to Whitehill Road. The provision of steps as an alternative for able bodied users has been considered as a part of the proposal.
- 8.6.3 The advantages of this option are that it would provide a long gentle gradient that can be negotiated by all users. This would also remove the fact that some people may be put off from using the route given the potentially intimidating nature of the large embankment.
- 8.6.4 The disadvantages in this approach is that it may be seen as simply replicating the existing route but place users in more isolation given the relatively dense tree line along the embankment. It was noted that during the winter months there is an open aspect to the embankment. However aerial photographs show that in the summer months the tree canopy can be quite dense and this may change people's view of the route. It may therefore be the case that while the facility is provided most people would prefer to use a simpler set of steps closer to the railway.
- 8.6.5 In discussions with stakeholders it was agreed that the gentle gradient was an advantage, however there was a general feeling that such a long route may not be the best option and that consideration should be given to concentrating the new facility closer to the railway line.

8.7 Option 2 (A series of 1 in 12 ramps)

- 8.7.1 Figure 8.10 provides an indicative layout of a ramped solution to negotiate the embankment from the A1 to Newcraighall Park. Figure 8.11provides an indicative cross section on how a path may be constructed into the embankment.
- 8.7.2 This option involves running a series of ramps up the embankment to tie in with the bridge deck at the A1. In addition to the ramps alternative stepped routes have been provided in at 'natural' locations where users would be drawn to. These could have wheeling ramps to allow some cyclists to make use of them.
- 8.7.3 It was agreed on site that from some locations the height difference from the park up to the A1 looked relatively intimidating, however from other points, such as at the corner of the park, the gradient looks as if it could be negotiated with relative ease. By concentrating the facility in the one area then there are benefits to be had from natural surveillance and also limiting engineering works to one particular area rather than over a 300m distance.
- 8.7.4 The disadvantage of this option is that the series of ramps may bring a number of engineering problems given the need to make multiple cuttings into the embankment, however it is believed that given the size of the embankment this is possible.
- 8.7.5 As discussed above it is considered that concentrating the facility in the one area all potential users may be more inclined to use the facility as intended. The steps would provide access to the A1 from both directions and the ramps can be provided with resting places to ensure that those with mobility difficulties can negotiate the embankment in stages as required.



8.8 Loss of Trees due to proposed works.

- 8.8.1 It is noted that the A1 embankment is lined with trees and as such the client has indicated that an estimate be given with regard to the number of these that may have to be removed to accommodate the proposed works.
- 8.8.2 In general the trees appear to have grown after general planting associated with the road works. Initial indications tend to suggest that there are no specimens of any note although it may be worthwhile carrying out a more detailed tree survey at the detailed design stage.
- 8.8.3 For the section of works to the west of the railway line it is estimated that some 60 trees would need to be cleared to accommodate the required earthworks.
- 8.8.4 For the section to the east of the railway line, if option 2 is pursued then some 144 trees could be expected to be lost.
- 8.8.5 There would, however be an opportunity to provide some landscaping works and provide some new trees as part of any detailed design. In fact the provision of trees close to the A1 would be beneficial in terms of providing an additional barrier to the high speed road. Trees in this area would also act as a sound barrier to a certain degree for the A1 road traffic noise. In addition to trees the provision of some well designed landscaping would result in a more attractive scheme as opposed to a relatively basic route that may be regarded as unattractive by potential users.

8.9 Lighting Provision

- 8.9.1 It is noted that for the existing route through Newcraighall Park to QMU lighting is currently being provided by solar powered units. This is as a result of no suitable power source being nearby to provide a more traditional lighting solution.
- 8.9.2 It is envisaged that there may be benefits in providing a similar system to any new route crossing the south side of the railway line so as to maintain continuity of provision. Similarly the use of solar powered units will negate the need for any power source on the west side of the railway line. It is also the case that the standalone units can be relocated and repositioned with relative ease if required.
- 8.9.3 The lighting being provided within the park is 5m lamp standard and it is considered that this would be ideal for the majority of the route. It is however the case that as the route approaches the A1 care will have to be taken with regard to the type and nature of lighting so as to avoid any unnecessary light pollution onto the high speed road that may confuse drivers.
- 8.9.4 It may be that some form of bollard type lighting would be preferable, however given the isolated nature of sections of the route these types of units could become a target for vandals and end up becoming a long term maintenance issue.

8.10 Land Ownership

8.10.1 As part of the study CB had asked CEC to carry out a land search with regard to landownership in the area of the proposed route as there was concerns that the lands needed for the new route may be outwith local authority control. CEC provided some information but this was incomplete with regard to the areas closest to the railway line.



8.10.2	As anticipated, it has come to light that the lands on either side of the railway
	line that would be required to accommodate the majority of the preferred route
	are under the control of Network Rail.

8.10.3 It is therefore the case that negotiations would have to take place with Network Rail to secure any new route. Unfortunately by the time this information was provided to CB there was little time to obtain any relevant feedback from Network Rail with regard to their thoughts on any proposed routes.











Drg No:	Rev. Date.			ropos otpati	
Figure 8.9	Amendment.		£	ed ramp and existing h/cyclepath link at underp	
R	Des.			Dass	
ve	Drn <u>.</u>			S	







9. Preferred Route

9.1 Use of Embankment to West and Option 2

9.1.1 Following the discussions with stakeholders and on-site observations it is the conclusion of the study that if a route was to be provided then it should follow the embankment to the west of Newcraighall Railway Station, rise up the embankment to the A1 railway bridge, cross the railway, then descend by a series of ramps to tie back into the existing path at Newcraighall Park. In addition to a surfaced route, steps will be provided at appropriate locations for able bodied users, together with wheeling ramps, as these may assist in reducing journey times for most users. Figure 8.9 provides details of this route.

9.2 Cost Estimates

9.2.1

The following table 9.1 provides an indicative cost estimate for the above route through identification of the main elements required to construct the route.

Item	Unit	Rate	Quantity	Cost
Imported material for earthworks to West of Newcraighall	m³	£20.30	1750m ³	£35,525.00
Bitumen Macadam Footpath (3.0m wide)	m²	£32.40	1065m ²	£34,506.00
Tubular galvanised steel handrail	m	£133.20	150m	£19,980.00
Rock Gabions for earth retention (Im thick)	m²	£76.80	150m ²	£11,520.00
Steps (timber construction with hardwood handrail)	Per 3m rise	£966.43	Total length 20 x 3.0m rises	£19,328.76
Solar Powered lighting units	No	£3,336.00	15	£50,040.00
Realignment of Safety Fencing on A1(TCB)	m	£27.44	90m	£2,469.60
2.10m high wire fencing for containment at A1	m	£38.16	80m	£3,052.80
Total indicative cost				£176,422.16

 Table 9.1:
 Indicative costs (based on Highway Works Price Book)

9.2.2

The above table is not an exhaustive list of the required construction elements and it should be recognised that only with more detailed survey work and design input would an accurate costing for the scheme be achieved.



10. Conclusions and Recommendations

10.1 Conclusions

- 10.1.1 This feasibility study has set out to examine the potential for providing a new route between Newcraighall Station and QMU by way of the existing railway bridge at the A1 to the south of the station's platform. The study also examined the potential levels of use for such a route.
- 10.1.2 In relation to the potential levels of use it is noted that currently Newcraighall Station is not seen as the main rail travel option for the vast majority of people heading to and from QMU by train. This appears to be due to the convenience and the proximity of Musselburgh Station to QMU and that a high number of passengers appear to be travelling from Edinburgh or on services other than the Crossrail service.
- 10.1.3 It is recognised that QMU have until now have been actively discouraging the use of the off-road path between the campus and Newcraighall Park until a new lighting scheme has been installed. It is further noted that a small fare price differential between journeys from Edinburgh to Musselburgh and Newcraighall favours the use of the former station. These issues may have some effect on the usage of Newcraighall but it is believed that they may not be as significant as the relative distances between the stations and campuses.
- 10.1.4 While the Newcraighall station benefits from a more frequent service than Musselburgh, the overall journey time has to be taken into account with regard to any potential switch to use Newcraighall. This difference however is negligible for those using bikes to complete their journey and other factors may influence individual decisions as to which station to use.
- 10.1.5 The likely effect in terms of increasing modal shift from car to train of tripling the frequency of rail services and creating direct services to 12 stations in central Scotland cannot yet be ascertained on the available evidence. This is an issue that the QMU staff survey may address.
- 10.1.6 It is further noted that given that journeys from central Edinburgh to QMU are faster via Musselburgh Station, Newcraighall may only be used occasionally, in particular in the off-peak hours and possibly in the early part of the evening peak. In addition to this any potential usage at this time may only be during QMU term time and as such a significant number of weeks may see little or no usage of the proposed route.
- 10.1.7 At present the existing route between Newcraighall Station and QMU results in a journey time by foot of some 15 to 20 minutes.
- 10.1.8 In examining the potential for a new route to the south of Newcraighall Railway Station it is estimated that this walking journey time could be reduced by some 5 to 8 minutes. This may make the use of Newcraighall station more attractive, however this would not result in the station being the first choice for rail travellers. It is more likely that the station would be used as an alternative in the case of specific time pressures on individuals at certain times of the day or for those travelling on the Crossrail service.
- 10.1.9 In relation to the construction of a new route, there does not appear to be any technical reasons at this time why a route cannot be provided. However more detailed survey work, in relation to topography and embankment stability, would be required before detailed design work could commence. Some care would be required with regard to the interface with the A1 but other than that a perfectly



usable off-road could be created on the lands either side of Newcraighall Station.

- 10.1.10 Discussions with stakeholders resulted in a preferred route being chosen. This route would include the provision of a series of 1 in 12 ramps on the east side of the railway line to negotiate the level difference between the A1 railway bridge and Newcraighall Park. On the west side of the railway line a simple 1 in 20 path could be created by using an existing embankment and the provision of appropriate earthworks to 'bridge the gap' to the A1 railway bridge.
- 10.1.11 Any works on either side of the railway line at Newcraighall will require negotiations with Network Rail who have been identified as landowners of the lands directly adjacent to the railway.
- 10.1.12 The study notes that the indicative costs (circa £176,000) for providing a route is relatively high and there are concerns that the levels of potential use may not justify such expenditure.
- 10.1.13 While it is appreciated that there is a need to provide a route that is DDA compliant, from the available evidence there would appear to be little benefit in providing a comprehensive but expensive facility only for it to be found to be used by a handful of people.
- 10.1.14 It is noted that there is the potential for future development in the area to the east of Newcraighall Station and this may result in more rail trips to and from the area and thus add justification to providing a more comprehensive scheme.

10.2 Recommendations

- 10.2.1 It is recommended that the results of the latest QMU travel survey be examined prior to any decisions being made with regard to the possibility of creating the new route.
- 10.2.2 The ongoing lighting provision is to be welcomed and it is assumed that QMU will now be promoting the route to Newcraighall as being relatively safe and useful for cyclists in particular. It is recommended that the promotion of the route should be given time to take hold prior to any new route across the railway line at Newcraighall being provided.
- 10.2.3 It is recommended that early negotiations are entered into with Network Rail with regard to future proposals for the route even if no immediate plans are developed or taken forward as demand for such a route is likely to increase in the long term.
- 10.2.4 It is recommended that the fare price differential should be resolved so that rail passengers see the station as being a reasonable alternative.
- 10.2.5 It is recognised that there is some benefit to be gained by reducing the journey time between Newcraighall and QMU, however the potential usage may not justify the full scheme at this time. It is therefore recommended that a lesser scheme could be provided that would be used by the majority of rail passengers. This could involve the provision of the stepped route on either side of the railway to the A1 railway bridge, ideally with some form of wheeling ramp provided for cyclists. Once this route is provided then the potential development sites to the east of Newcraighall Park could be monitored and the provision of the full scheme be included in any future masterplans for the area or be included as part of future planning conditions to meet the additional demand for



public transport services in the area. The cost of this lesser scheme has not been calculated but is likely to be at least 70% less than the full scheme.

